

meadow at the back and to the right of the house, but quite visible from the windows. The Lions' House, as will be seen, is a raised mound of earth. The earth rests upon an arched structure, which, at the time of my last visit, was in excellent condition, although ever since Hunter's time it has been a cow-house, and has done nearly a century of useful service. At the top of the mound there is a little wall, of a circular shape, inclosing a small open space. The third sketch illustrates the famous copper in which the Irish giant was boiled to a skeleton. The space above the copper up to the flue from the roof is covered in, but two doors open in front above the mouth of the copper. The whole of this structure has remained in good preservation.

The sketches are selected for NATURE from views which Bertram Richardson has taken during the last autumn, as part of a series of homes and birthplaces of illustrious men.

B. W. RICHARDSON

THE METEOR SHOWER AT THE MAURITIUS

ON the evening of Friday, the 27th of November last, a great shower of meteors was observed at Mauritius.

The weather was cloudy and the sky often overcast, but from the accounts which I have received from different parts of the island it would appear that the shower lasted from at least 7 p.m. till midnight.

At Reduit, about 900 feet above the sea-level, where the sky was clearer than at the Observatory, His Excellency Sir J. Pope Hennessey, saw many bright meteors, which at first appeared to travel from N.W. to S.W., and a crackling noise was heard.

Looking on from 8 to 8.30 p.m. at Beau Bassin, Col. Stewart, R.E., saw about twenty meteors per minute, apparently travelling from N.W. to S.W.

About 7 p.m. several members of the Rev. Mr. McIrvine's family, happening to turn their faces towards the north, immediately observed a number of bright meteors, and in a short time they counted 200. Later on, Mr. McIrvine and two other observers counted 700 in three-quarters of an hour, although the sky was much overcast to the west and north and slightly to the east. Between 8.45 and 9 p.m. Mr. McIrvine and Mr. Holloway counted 150 passing along a narrow clear space just above Orion. From 9 till midnight the sky was several times quite overcast, and as the clouds cleared away the meteors could be seen faintly through the mist, gliding along ghost-like. Between 11.34 and 11.50 Mr. McIrvine counted 160, which appeared in an unclouded space between Orion and the zenith. The sky was clouded towards the north the whole evening, and the meteors seemed to come from under that cloud, and, with few exceptions, they all travelled towards the south. Occasionally, a small one, needle-like, darted now towards the S.E., now towards the S.W., but none were seen going back, or even so far aside as east or west. Most of the meteors were small and needle-like, of a whitish colour, with paths extending from 5° to 40° , although some seemed to appear and vanish instantly without perceptible movement. The meteors moved quickly, not unlike arrows approaching the target in an archery competition. The very largest travelled slowly across 30° to 50° , and some of them were blue, some white, some red. Many of them looked like comets, and every now and then it was noticed that the head—which was very distinct—suddenly vanished, while the double-winged train (20° to 40° , or more, in length) still moved on.

At Vacoas, at an altitude of nearly 1300 feet, the Hon. Mr. Elliott first saw the meteors at 7.15, and he counted 791 from 8.35 to 9.15. The principal direction seemed to be from N.N.E. to S.S.W. The most brilliant passed near Venus.

In the same part of the island, Mr. Freeland observed

a great many meteors between 10.15 and 11.30. The shower was not constant, but at short intervals, and the meteors travelled from north to south.

At the Observatory, in the northern part of the island, the weather was cloudy, and the sky generally entirely overcast. At 8.20 p.m. several meteors were seen coming from the northward. Between 9.1 and 9.9 Mr. Bell and myself, with two other observers, counted not less than 204, though the greater part of the sky was overcast, and not less than 173 between 9.9 and 9.16. Between 9.26 and 10.40, the sky was completely overcast. From 10.40 to 10.50 glimpses of Aries, Taurus, and Orion were got, and in that interval six large meteors with long trains passed towards the south-eastward between α Arietis and the Pleiades, and three more between 0.30 and 0.40 a.m. The sky then began to clear up towards the N.W. and north, and I kept up watch till 1.15 a.m., but no more meteors were seen.

I did not see the similar shower that was observed here in 1872; but from what I saw between 9.1 and 9.16 p.m. on the 27th of November last, during which time Andromeda, Aries, Taurus, Orion, &c., were visible, it is certain that the radiant-point was near γ Andromedæ, or that there was a radiant-space around that star.

The meteors shot to the southward, south-eastward, and south-westward, some of the largest with trains of 20° to 40° in length, disappearing to the southward behind the Port Louis and Pieterboth mountains, and others bursting with great brilliancy near Venus, Fomalhaut, α Cruis, &c.

On referring to the account given of the shower of November 27, 1872, by Mr. C. Bruce and Mr. Ed. Newton, it would appear that the radiant-point was the same on both occasions, or very nearly so, but that the maximum intensity of the shower was earlier this year than in 1872.

C. MELDRUM

Mauritius, December 22, 1885

NOTES

THE meeting of the British Association to be held at Birmingham, beginning on Wednesday, September 1, will derive more than usual interest and importance from the exhibition of local manufactures which is to be held in connection with it. The Exhibition will be on a very much larger scale and of a much more popular and attractive character than has ever been attempted before. It is to be an Exhibition illustrative of products and processes connected with the manufacturing districts of Birmingham and the surrounding district within a radius of fifteen miles, which will include the whole of the Black Country, the nail district, and other towns where manufactures are carried on. The Exhibition will be on a very complete scale, and will embrace as nearly as possible all the industries of the district, which will include the following:—Engineering, hardware, heating and lighting, arms and ammunition, jewelry, glass and pottery, stationery, leather, furniture and decoration, and a miscellaneous class, including scientific and musical instruments. The special feature of the undertaking will be that in every trade represented processes will be either completely shown or fully indicated. Workmen will be seen engaged in carrying out most interesting or difficult operations connected with various industries. The Exhibition will be opened on August 26, and close on October 1, three weeks after the termination of the visit of the Association.

A PROJECT has been started in Berlin to establish there an Anthropological Exhibition, which will do with regard to the races of men what zoological gardens do with regard to animals. In the Exhibition or garden it is intended that representatives of various races shall permanently reside, while of such races as cannot stand the cold of the climate representatives will be brought to Germany to reside there during the summer. An

Ethnological Museum is to be established in connection with the Exhibition, which is said to have the support of several capitalists. Possibly the recent success in Berlin and London of Japanese and Indian villages has led to this project, which, however, is a far more difficult undertaking, but which, if carried out, would prove of great public interest. A good many years ago, at the Crystal Palace, an attempt to represent various peoples and their habits by means of models was commenced, but it was never carried very far. Some of these models are still to be seen at the south-west corner of the main building.

THE annual meeting of the Association for the Improvement of Geometrical Teaching was held at University College, Gower Street, on Friday, January 15, when certain additions to the rules were carried and twenty new members (including three honorary members) were elected. At the afternoon sitting, the President (R. B. Hayward, F.R.S., Harrow) read a paper on the "Correlation of the Different Branches of Elementary Mathematics." A discussion on the paper was commenced by the Rev. G. Richardson (Winchester), in which the Chairman (R. Levett, Birmingham), Profs. Carey Foster, Hudson, and Minchin, Messrs. A. J. Ellis, Heppel, Walters (Dover College), and the Rev. J. B. Lock (late of Eton) took part. We hope to notice the paper when the Report of the Association has been printed.

ON December 31 last, Mr. G. J. Symons completed the twenty-fifth year of his work in connection with "British Rain-fall," and it has been thought a good opportunity for presenting him with a pecuniary testimonial, to which all observers of rain-fall are invited to subscribe. The Committee have already published a first list of subscribers, and as they are anxious to present Mr. Symons with the testimonial as early in the year as possible, all observers who intend to subscribe are requested to communicate with the treasurer, Rev. Clifford Malden, St. Lawrence Rectory, near Ventnor, Isle of Wight.

As examples of tropical rainfall, it may interest our readers to learn that during the present rainy season in Jamaica, which has succeeded a period of serious drought, there was recorded at the Government Cinchona Plantations on December 21 last a fall of 11.80 inches in twenty-four hours, while the gauge, the readings of which are taken at 7 a.m. daily, was full and overflowing. On the crest of the Blue Mountain range, on the same plantations, the record was 31.50 inches for one week, of which period three days were fine.

THE following alteration has been made in the arrangements for the Friday evening meetings at the Royal Institution before Easter:—Prof. W. H. Flower, F.R.S., will give a discourse on Friday, February 19, on "The Wings of Birds," instead of Prof. W. K. Parker, F.R.S., on "Birds, their Structure, Classification, and Origin."

THE thirty-ninth annual general meeting of the Institution of Mechanical Engineers will be held on Thursday, February 4, and Friday, February 5, at 25, Great George Street, Westminster. The chair will be taken by the President, Mr. Jeremiah Head, at 7.30 p.m. on each evening. The following papers will be read and discussed, as far as time permits:—Description of an autographic test-recording apparatus, by Mr. J. Hartley Wicksteed, of Leeds; description of tensile tests of iron and steel bars, by the late Mr. Peter D. Bennett, of Tipton; description of a hydraulic buffer-stop for railways, by Mr. Alfred A. Langley, of Derby; on the distribution of the wheel load in cycles, by Mr. J. Alfred Griffiths, of Coventry.

THE Council of the Society of Telegraph Engineers and Electricians are at present engaged in considering a proposal brought

before them by Prof. J. A. Fleming, and having for its object the establishment of a National Electric Standardising Laboratory.

THE third Electrical Exhibition at St. Petersburg was opened on January 1 by Prince Michael Nikolaievitch. It is held in the buildings of the Pedagogical Museum, and is said to be the largest ever held. The telephonic department forms a special attraction.

A GERMAN edition of Prof. R. S. Ball's researches on "Theoretical Dynamics" is in the press. The volume will contain the "Theory of Screws," published in 1876, and the papers subsequently read to the Royal Irish Academy. The whole has been edited and translated by Dr. Harry Gravelius, of Berlin, who has occasionally added developments necessary for continuity and completeness.

A PROPOSITION has been made in Ceylon for the systematic observation of the singular migration of butterflies in that island. Despite occasional references in the local press, nothing has yet been done towards compiling and editing a scientific and comprehensive record of annual observations. It is proposed therefore that volunteers should watch for the migration, and send a postcard bulletin to the editor of the records, noticing date, direction of flight, direction of wind, the weather, and the species. For the last purpose amateur observers are to send one specimen of each species noticed, in order to insure scientific accuracy. A competent naturalist is stated to have offered to revise, assort, and edit all such notices once or twice a year, and publish a periodical report of progress. The annual summary will appear in the *Taprobanian Magazine*, the first number of which we recently noticed.

WITH the great spread of education throughout England during the past sixteen years it is extraordinary how little here compared with the United States the work of the schools has been supplemented by those "universities of the people," free libraries. No doubt the costliness of working one in a community where the produce of the penny rate does not amount to 500*l.* a year is a great difficulty, as such a sum is absorbed in the ordinary working expenses of rent, attendance, gas, and newspapers. We would call attention to the success of a method of supplementing an insufficient income clearly shown by a catalogue we have received from the Coventry Free Library. For many years its rate brought in little more than paid the above expenses. A club was then established consisting at first of a few assiduous readers who selected their books, kept them for their own use for six months, and then sold them to the Free Library at one quarter of published price. To the club the advantages were that the Free Library, open at all hours, being their depot, they had scarcely any working expenses, the books all remained permanently within their reach, and yet, instead of having to purchase at the end of the year books which they did not want, one-third of the amount of their subscription was returned to them for further purchases of books. The advantage to the Library is shown by the present catalogue, from which we learn that the still-increasing list of members has now reached 172, and, accordingly, that it is passing more than 1200 works yearly into the Library at an expense of over 200*l.* per annum. There is an increase of over 11,000 works in the Library since the last catalogue was printed; and a larger proportion of them than usual in a Free Library are high-class and costly books derived from this source, which must make the Library the resort of the most studious and best educated readers of the city.

IN the last number of *Nature*, Herr Karl Hesselberg closes his series of interesting papers on the climate of Norway. The small number of systematically organised meteorological stations

in the country has necessarily interfered with the acquisition of all the data required to formulate a comprehensive and scientific theory of the Norwegian climate. As a contribution, however, to our meteorological knowledge, the author's numerous tables of the frequency and periodicity of certain weather phenomena in various parts of the country are of considerable value, while special and novel interest attaches to his observations of various anomalous meteorological conditions, such, for instance, as the occurrence of a maximum rainfall at points far inland and unconnected with the sea, which he refers to the influence of cyclonic agencies.

MR. PAUL BERT, who has been gazetted Resident-General in Tonquin and Annam, has been interviewed by several correspondents, and has written articles indicating that he will endeavour to promote the interests of science. He is desirous of establishing a "Tonquin Institute," some organisation similar to the Institut d'Égypte, which was created by Bonaparte in 1798. Although nothing definite has been stated, these declarations have created some sensation in the French scientific world.

MORE than usual seismic activity is reported from Central and South America. On the 18th ult. the town of Amatitlan, in Guatemala, was nearly destroyed by an earthquake, there being altogether 131 shocks. In other parts of Central America shocks of earthquake have occurred. It is reported from Guayaquil that symptoms of earthquake have been observed at Chimbo, in Ecuador, coincident with a renewed eruption of the volcano of Cotopaxi. The previous eruption of this mountain was lately referred to here. The Ecuador volcano, Tunquiqua, is in a state of violent eruption, being evidently, it is stated, in sympathy with Cotopaxi.

AN influential Committee has been formed for the purpose of raising a permanent record of Dr. Redwood's services to chemistry in its relation to medicine and pharmacy. It is proposed to found a "Redwood Scholarship" in connection with the Pharmaceutical Society, which has for more than half a century been the principal scene of Dr. Redwood's labours. Subscriptions should be sent to the Honorary Secretary, Prof. Dunstan, 17, Bloomsbury Square, London, W.C.

MR. LANGTON COLE, of Loughrigg, Sutton, Surrey, writes to the *Times* that a remarkable meteor was seen there on the 16th at 5.9 p.m. in bright twilight. Its apparent course, which was marked by a continuous and brilliant train, was from the zenith to a point due east, about 15° above the horizon. It was brighter than Venus, and the diameter of its head seemed about one-sixth of that of the moon. A Wimbledon correspondent also writes that he witnessed the fall of a meteorite, apparently a few miles east-north-east of Rickmansworth Church, at about 5.5 p.m. on the same day. The "nucleus" was comparatively small, and showed vividly the colours of the rainbow. The tail was not the long fleecy fiery thing one sometimes sees in such cases, but a well-defined oval, about the apparent size of the moon in her present phase, and as bright and creamy as molten silver.

THE fourth of Prof. Terrien de Lacouperie's course of lectures on Indo-Chinese philology will be delivered on Wednesday, the 27th inst., at University College. The subject will be "The Languages of Thibet and Burmah."

THE last number of the *Folk-Lore Journal* (vol. iii., part 4) contains some Chilian popular tales collected *viva voce* in the country, and translated by Mr. Moore. Rev. Walter Gregor, in a paper on "Some Folk-Lore of the Sea," describes the superstitions and sayings of the fishing population on the north-east coast of Scotland. Some of the former are very curious survivals; while other customs appear to have for their object the drinking of whisky at some one else's expense. Mr.

Christopher Gardner, of the Consular Service in China, gives a number of Mongolian folk-tales, translated apparently from M. Potanin's work on North-Western Mongolia; and Dr. Morris continues his folk-tales of India, the present instalment being the most important contribution to the number.

WE regret to learn of the death of Mr. J. B. Jeaffreson, M.R.C.S., on the 12th inst. Till lately President of the High-bury Microscopical Society, he was well known in the North of London as a diligent worker with the microscope in biological research.

THE Berlin Academy of Sciences has granted 3000 marks (150*l.*) to Lieut. Quedenfeldt for an exploring tour to the Atlas Mountains. Lieut. Quedenfeldt will principally study the natural history of the district.

AT the forthcoming Indian and Colonial Exhibition it is intended not only to display turtles in tanks, but to hatch them from the ova. It is exceedingly interesting to watch the manœuvres of the infant turtles on being liberated from the ova, and this is sure to prove one of the sights of the Exhibition. A spacious conservatory is being specially erected for the purpose, in which the turtles will be surrounded by every detail of their natural existence.

A STRIKING evidence of the fertility of the sea-trout (*S. trutta*) has been revealed at the South Kensington Aquarium, where several have been artificially spawned with great success. We believe this is the first time on record that this species has been made to yield ova under similar circumstances. The fish in question had been kept in captivity with other species of Salmonidæ for three years, and therefore had never visited the sea, as is their wont, but notwithstanding the check thus placed upon their natural instincts, their condition has not been in the least impaired, neither have their productive functions become disorganised. The operations of the inhabitants of the Salmonidæ tank at the Aquarium are very interesting to watch at this season of the year, especially the manner in which the fish pair with opposite species—for instance, the fontinalis with the common trout, the sea-trout with the *Gillaroo* trout, &c. In captivity, fish yield their ova much later than they do when in a wild state; but of every thirty subjected to artificial existence there is, upon an average, only one barren fish amongst them.

AT the Lochbuy Fishery, Isle of Mull, the property of the MacLaine of Lochbuy, large quantities of ova of salmon and sea-trout are being incubated, consignments having been imported from abroad. The extensive waters on the Lochbuy estate, which were formerly destitute of fish, now teem with life, the result of systematic pisciculture. The proprietor has been most successful in spawning from the fish captured in the rivers of the property.

THE papers in the last number (No. 3) of the *Proceedings* of the Chester Society of Natural Science are of a more than usually high order, which is not surprising when the names of some of the authors appear. Prof. McKenny Hughes has a paper, with elaborate illustrations, on the geology of the Vale of Clwyd; Mr. Aubrey Strahan writes on the denudations of North Wales; while Prof. Judd suggests as a problem for Che-hire geologists the investigation of a patch of secondary strata between Audlem and Wem, not far from Chester,—the points suggested are the exact extent and limits of this outlier, the relations of the Lias to the surrounding strata, and the nature, thickness, and fossil contents of the strata of which it is composed. A committee of of the Society has been appointed to examine into the subject. Mr. Mackintosh describes certain traces of an interglacial land-surface near Crewe. Mr. Walker has three papers—one on the climatic causes affecting the distribution of Lepidoptera in Great Britain, the second on the Macrolepidoptera of the Chester district, which is a long and careful list; and his third paper

is on the climate of the Chester district considered in its relation to fruit-growing. Dr. Stolberforth describes the special forms of microscopic life found by surface dredging in the estuary of the Dee. Mr. Ruddy gives a list of the Caradoc or Bala fossils found in the neighbourhood of Bala, and Mr. Siddall writes on the American waterweed (*Anacharis Alsinistrum*, Bab.), its structure and habit, and adds some notes on its introduction into this country, the causes affecting its rapid spread at first, and present apparent diminution. Mr. Shrubsole has three short papers—one a list of the land and freshwater shells of the Chester district, a second on the *Glauconome disticha* from the Bala beds at Glyn Ceiriog, and the third on the occurrence of *Calcsiphara* (Williamson) in the Eglwyseg rocks near Llangollen. It will be noticed that these fifteen papers, with two exceptions, refer solely to the district in which the Society works, and that they refer to its geology (including palæontology), meteorology, and several departments of its natural history. The Society is to be congratulated on the thoroughness and comprehensiveness of its work for the past year.

ACCORDING to the *Colonies and India* the Winnipeg Historical Society has suggested to the Canadian Government that a scientific investigation be made into the remarkable ancient mounds recently found in the Canadian North-West, and the suggestion has been warmly commended in the Canadian press. It is pointed out that these mounds are rapidly disappearing under the ploughshares of the farmer, and with them will go the best means of settling the problem whether the mound-builders crossed from Asia and passed down the river valley to the central portions of the continent, or whether their migrations were from south to north.

THE recent attempts to cultivate the tea-plant in the neighbourhood of Messina have been very successful. Similar experiments had been made some years ago without giving any satisfactory results.

AN International Exhibition, similar to that held at Antwerp last year, is planned by the city of Geneva for 1887.

THE Provincial Diet at Salzburg has issued a law interdicting the sale of Edelweiss-plants with roots. The Tyrol Diet has also asked for Government regulation of the trade in these plants.

MR. JAMES GRIEG, of the Museum of Bergen, informs *Naturen* that in the course of last summer a male specimen of *Palinurus vulgaris* was taken in a lobster pot at Manger. This, as far as is known, is the first time that this crustacean has appeared as far north as the Norwegian coasts.

THE following new books and new editions have been received by us since January 1:—"A Tangled Tale," by L. Carroll (Macmillan and Co.); "East Anglian Earthquake of 1884," by R. Meldola and W. White (Macmillan and Co.); "Osteology of the Mammalia," 3rd edition, by W. H. Flower (Macmillan and Co.); "A Brief Text-Book of Political Economy," by F. A. Walker (Macmillan and Co.); "A Treatise on Colours and Pigments," 2nd edition, by J. S. Taylor (Winsor and Newton); "Catalogue of the Coventry Free Library"; "Practical Bacteriology," by E. M. Crookshank (Lewis); "Key to Toddhunter's Mensuration for Beginners," by the Rev. Fr. L. McCarthy (Macmillan and Co.); "Catalogue of Fossil Mammalia," British Museum, part 2, by R. Lydekker; "Geology," vol. i., by Prof. Prestwich (Clarendon Press); "Annuaire de l'Académie Royale de Belgique" (Hayez, Bruxelles); "The Rotifera; or, Wheel Animalcules," by Hudson and Gosse (Longmans); "Light," 4th edition, by Prof. Tyndall (Longmans); "Year-Book of Pharmacy, 1885" (Churchill).

THE additions to the Zoological Society's Gardens during the past week include a Bonnet Monkey (*Macacus sinicus* ♂) from

India, presented by Messrs. Phillips Bros.; a Vervet Monkey (*Cercopithecus lalandii* ♂) from South Africa, presented by Mrs. Sinclair; a Ring-tailed Coati (*Nasua rufa* ♂) from South America, presented by Mr. C. E. Dashwood; a Northern Mocking Bird (*Mimus polyglottus*) from North America, presented by Mr. F. Green; a Jackal Buzzard (*Buteo jacob*) from South Africa, presented by the Rev. C. W. H. Reynolds; a Jay (*Garrulus glandarius*), British, presented by Mr. E. R. Collins; three Hoary Snakes (*Coronella cana*) from Constantia, South Africa, presented by the Rev. G. H. R. Fisk, C.M.Z.S.; a White-throated Capuchin (*Cebus hypoleucus* ♀) from Central America, deposited; four Cirl Buntings (*Emberiza cirius*), two Pied Wagtails (*Motacilla lugubris*), British, purchased; a Vulpine Phalanger (*Phalangista vulpina*), born in the Gardens.

OUR ASTRONOMICAL COLUMN

COMET BROOKS.—Dr. H. Oppenheim has computed the following elements and ephemeris for Comet Brooks:—

$$T = 1885 \text{ Nov. } 24^{\text{h}} 7806 \text{ Berlin M.T.}$$

$$\begin{aligned} \pi &= 296^{\circ} 38' 45'' \\ \Omega &= 262^{\circ} 1' 48'' \\ i &= 42^{\circ} 25' 11'' \\ \log q &= 0.03012 \end{aligned} \quad \text{Mean Eq. } 1886.0.$$

Error of the middle place (o - C).

$$d\lambda = -4 \quad d\beta = -2$$

Ephemeris for Berlin Midnight

1886	App. R.A. h. m. s.	App. Decl.	Brightness
Jan. 22 ...	21 35 11 ...	+15° 21' 0" ...	0.3115 ... 0.59
24 ...	21 42 32 ...	+16° 7' 0" ...	
26 ...	21 49 50 ...	+16° 51' 9" ...	0.3203 ... 0.54
28 ...	21 57 4 ...	+17° 35' 7" ...	
30 ...	22 4 14 ...	+18° 18' 5" ...	0.3295 ... 0.49

The brightness on December 28 is taken as unity.

This comet was independently discovered by Mr. E. E. Barnard, of Vanderbilt University, Nashville, Tennessee, on December 27, the night after its discovery by Mr. Brooks.

ASTRONOMICAL PHENOMENA FOR THE WEEK 1886 JANUARY 24-30

(For the reckoning of time the civil day, commencing at Greenwich mean midnight, counting the hours on to 24, is here employed.)

At Greenwich on January 24

Sun rises, 7h. 52m.; souths, 12h. 12m. 22.5s.; sets, 16h. 33m.; decl. on meridian, 19° 9' S.; Sidereal Time at Sunset, oh. 49m.

Moon (at Last Quarter on Jan. 27) rises, 21h. 13m.*; souths, 3h. 39m.; sets, 9h. 53m.; decl. on meridian, 1° 53' N.

Planet	Rises h. m.	Souths h. m.	Sets h. m.	Decl. on meridian
Mercury ...	6 55 ...	10 50 ...	14 45 ...	23° 10' S.
Venus ...	8 39 ...	14 17 ...	19 55 ...	5° 5' S.
Mars ...	21 6* ...	3 35 ...	10 4 ...	5° 9' N.
Jupiter ...	22 12* ...	4 11 ...	10 10 ...	1° 4' S.
Saturn ...	13 45 ...	21 55 ...	6 5* ...	22° 38' N.

* Indicates that the rising is that of the preceding evening and the setting that of the following morning.

Occultation of Star by the Moon

Jan.	Star	Mag.	Disap.	Reap.	Corresponding angles from vertex to right for inverted image
24 ...	B.A.C. 4043 ...	6½ ...	3 40 ...	4 40 ...	100° 222'
Jan. ...	h.				
24 ...	18 ...				
26 ...	16 ...				
26 ...	21 ...				
30 ...	6 ...				

Jupiter in conjunction with and 0° 17' south of the Moon.

Venus stationary.

Mars stationary.

Mercury at greatest distance from the Sun.